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ZANZIBAR GOVERNMENT

ANNUAL

MEDICAL AND SANITARY REPORT

FOR THE

year ended 31st December, 1941

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OFFICE OF THE
SENIOR MEDICAL OFFICER-IN-CHARGE,
MEDICAL AND SANITARY SERVICES,
Zanzibar, 1st April, 1942.

Sir,

I have the honour to submit for the information of His Excellency the British Resident and for transmission to the Right Honourable the Secretary of State, the Medical Report on the Health and Sanitary Conditions of the Zanzibar Protectorate for the year 1941, together with the Returns, etc., appended thereto.

I have the honour to be,
Sir,
Your obedient servant,

W. H. HART,
Senior Medical Officer-in-Chrage,
Medical and Sanitary Services.

THE HONOURABLE,
CHIEF SECRETARY TO THE GOVERNMENT,
ZANZIBAR.

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ZANZIBAR PROTECTORATE

ANNUAL MEDICAL and SANITARY REPORT

for the year ended 31st December, 1941

SECTION I.

GENERAL REVIEW.

During the year the staff remained the same. Drs. Lee, Roberts, McCarthy and Pilkington were still absent on military duties. Dr. Lee was replaced as Senior Medical Officer-in-Charge by Dr. Hart, and Dr. Taylor did part-time health duties. Actually, there was a shortage even on the reduced staff of medical officers during the year due to the necessities of leave, so that during most of the year there was one woman medical officer and one medical officer on leave. For this reason a woman medical officer was put in charge of a hospital in Pemba, thus doing the duties of medical officer in addition, with an assistant medical officer under her. A new assistant woman medical officer was stationed in Zanzibar, where she did maternity work and infant welfare clinics, etc., under the supervision of the district medical officer. The Pathologist did medical officer's duties in addition to his own. Rural dispensaries and, for a time, health activities, were looked after by the Senior Medical Officer-in-Charge. There was also a shortage of sisters during the year due to illness, marriage and leave. Replacements were naturally slow to arrive, and the nursing staff was as low as one sister and was never more than four, instead of six, in Zanzibar Hospital. This resulted in hospital attendants and nurses who had passed their third year examination being given increased responsibility and work, a test which the majority underwent successfully.

Measures to prevent the entry of yellow fever into Zanzibar were taken during the year, and these are detailed in Appendix I. Legal precautions against the entry of unauthorized aeroplanes from territories where yellow fever had occurred were being promulgated at the end of the year.

A scheme for the training of midwives was drawn up, and is detailed in Appendix II. Training is now in progress, but owing to lack of sisters and woman medical officers is necessarily slow. Training in hospital personnel continued as before, with lectures and examinations. An examination is held at the end of the first year and third year. Two such examinations were held during the year in April and December. Eight probationers passed their third year and became staff attendants and nurses. It is regretted that the erection of a hostel for probationer attendants in Zanzibar was again postponed.

At the suggestion of His Excellency the British Resident, the diet scales of the lepers at Makondeni were revised and now include more calories and vitamins. At the same time a new diet scale was introduced for patients in the general ward, the calorie and vitamin content of this diet being insufficient.

During the year certain extensions and alterations of hospital buildings were carried out. An office and consulting room for the Specialist Officer and hospital clerk were established at Zanzibar Hospital; the out-patient department was enlarged and so was the X-ray room.

In Pemba at Chake Chake Hospital, extensions were made at the end of the year to female wards and to latrine accommodation, and these are still in progress. Extensions to Wete Hospital to accommodate European emergency cases and more first class Asiatic accommodation were estimated for and will, it is hoped, be carried out in 1942.

During the year military units were stationed in the Protectorate. This necessitated special anti-malarial work in the localities where they were stationed. Arrangements were made to examine persons reporting sick and to accommodate those requiring treatment at hospital.

Air raid practices were held at various intervals throughout the year. The first-aid personnel of the posts, eight in number, consists of stretchers bearers and first-aid men derived from sweepers, headmen, mosquito searchers, etc. Each post is under the charge of a Sanitary Inspector and the whole lot under the supervision of the Sanitary Superintendent who is under the Senior Medical Officer-in-Charge A.R.P. Headquarters. Private doctors are attached to six of the posts. The keenness which is displayed and the regularity of attendance are most gratifying, and there is no doubt that the training given in first-aid to these and other members of the community will be of permanent value. Hospital organization for A.R.P. purpose has been revised and brought up to date, and provision has been made for the possible necessity of evacuation of the hospital.

SECTION II.

GENERAL DISEASES.

The diseases treated at the Government hospitals and dispensaries during the year are grouped in percentages of cases treated in the following table:—

	Per cent.
Endemic, epidemic and infectious diseases ...	17
Nervous system ...	6
Respiratory system ...	8
Digestive system ...	23
Skin and cellular tissue ...	28
External causes ...	8
Others ...	10
Total ...	100

The number of cases and deaths due to epidemic, endemic and infectious diseases are shown as following:—

Total number.	Epidemic, endemic and infectious diseases.	Deaths.
91,579	15,813	85

SECTION III.

COMMUNICABLE DISEASES.

(a) Mosquito or Insect-Borne Diseases.

ZANZIBAR.

The only figures to work on are the cases of malaria in Government Hospital confirmed by blood examination. These have, year by year, closely corresponded to the experience of practice in town, and may be taken to reflect the position fairly accurately.

Below is a list of cases from 1937 onwards. This shows that there are still fewer cases than in 1940 and less than half those in the preceding three years. It shows the lowest number of cases in any year recorded. At the same time, the type of malaria was, as in 1940, a more virulent one, and the Medical Officer of Health observes: "In malaria we are confronted with an ill-understood, or indeed unknown factor, i.e. the behaviour of malaria. When malaria presents itself in a more severe form, we should take warning. It may well be that in 1942 with a wider campaign and a diminished number of anophelines in town, we may have a much greater incidence of malaria than in the past two years. Neighbouring territories on the mainland experienced this in 1940 and, I believe, to some extent in 1941, though we have not got their figures yet. These figures and remarks apply to the town. Outside of the town malaria is rife and universal."

Case of malaria notified from Government Hospital.

ZANZIBAR.

Month.	1937	1938	1939	1940	1941
January ...	99	256	182	28	32
February ...	68	164	184	25	28
March ...	57	71	108	31	41
April ...	42	75	94	24	23
May ...	120	111	78	94	56
June ...	191	264	132	169	89
July ...	170	170	151	73	61
August ...	122	73	54	51	92
September ...	79	71	62	26	45
October ...	115	78	45	26	22
November ...	70	61	43	36	39
December ...	139	67	19	18	40
Total ...	1,272	1,461	1,152	601	568

Considerable improvement was effected in the permanent drainage in Migombani valley, and new earth drains made into the higher parts beyond.

In Mwembeladu area much work was done in improving the drain to the sea—the wall to contain sand largely extended, and ground filled in behind the wall. New surface concrete drains were made through the low-lying area at Mwembe Njugu which used to be seriously flooded and this year was almost completely free from surface water. Completion of an old scheme of drainage was done at Hollis Road with formation of new culverts, and new concrete drains laid at Chwaka Road junction.

A great deal of work has been spent on levelling the Ziwani Swamp and eight hundred and ten new trees—eucalyptus and cassia—planted here.

As an experiment, in the sandy area adjoining the Chief Secretary's house, three thousand six hundred and sixty-two crab holes were filled with a mixture of lime and paris green, resulting in two thousand four hundred and fifty-six dead crabs being collected.

In the case of large crabs, these were dug out as the poison mixture could not penetrate their tunnels. The number dug out and killed was four hundred and seventy-three.

In addition, three thousand five hundred and seventeen crab holes were inspected, of which one hundred and fifty-three were found to contain mosquito larvae—mainly aedes.

MOSQUITO BREADING PLACES FOUND.

ZANZIBAR TOWNSHIP 1941.

	Anopheline.	Culicine.	Stegomyia.
"A" District ...	16	138	347
"B" District ...	—	109	319
"C" District ...	—	18	529
"D" District ...	6	116	1,004
"E" District ...	15	40	948
"F" District ...	24	60	405
Total ...	61	481	3,552

In the half-mile controlled strip outside the town boundary:—

Anopheline.	Culicine.	Stegomyia.
363	393	207

Six control stations (huts and houses on the boundaries of the town) kept under observation showed catches of adult mosquitoes as follows:—

Anopheline.	Culicine.	Stegomyia.	Rainfall inches.
10	1,575	42	57.74

PEMBA.

Wete.

Market Swamp has now been completed with deep contour drains laid with stones and measuring nine hundred and eighty-four feet, which were laid this year. All the stone drains laid down in previous years are working satisfactorily. In addition, two hundred and fifteen feet of cement pipe drainage have been laid and low-lying parts of the swamp filled in.

Water Works Swamp was found the most prolific breeding place of anopheline and culex mosquitoes. The western end of this swamp is tidal and filled with a mangrove swamp, while the upper portion is full of small pools, all of which are breeding grounds. New earth drains have been dug in this area, about three hundred and sixty-six feet in length, and many low-lying rain collecting areas filled in. The low-lying level of this swamp, however, does not permit adequate drainage, and so constant oiling and grass cutting is in progress. An attempt is now being made to fill in the swamp and raise its level by dumping.

Court Swamp is in a satisfactory state and all the contour drains are working satisfactorily. The sea end of the swamp, however, is studded with innumerable crab holes which need constant oiling and filling in

Hospital Swamp has ceased to be a mosquito breeding ground, and the planting of casuarina trees has met with good initial success, but, in the recent months, a few have been destroyed by being ring-barked by white ant.

Slaughter-House Swamp is now being drained mostly by contour drains, as the wash of soil from the higher ground constantly choked existing pipe drains, which have been replaced. The existence of a spring in this swamp leads to constant flowing water, but this has been controlled and discharged into the sea. Most of the area of the swamp has now been planted with yellow cassia trees, planted from seeds, and the majority germinated, the remaining two-thirds of the swamp are planted with fifty plants of the West African oil-palm.

Selem Swamp remains dry throughout the dry and light rainy seasons.

Chake Chake.

Tibirizi Swamp.—This problem was again tackled, and an effort was started to fill in the swamp with neighbouring earth so as to, in time, raise the general level to eighteen to twenty-four inches. Up to the present, three thousand six hundred and seventy-five square yards have been completed.

Wireless Hill Swamp was drained with a main large earth drain down the central slope, and the rest of the area herring-bone drained with stone drains. Contour drains were also laid down, resulting in a very marked improvement to the drainage of this area.

Mkoani.

Two thousand one hundred and seventy feet of earth drains in the northern and southern swamps have been laid with stone and two hundred and eighty-seven feet relaid with pipes. About fifty casuarina trees have been planted in the most low-lying areas.

In other areas in the swamps, the public have been asked to grow food and cultivate the soil in raised beds, and the response has been fairly satisfactory. The mosquito findings, both adult and larvae, have appreciably diminished.

(b) Epidemic Diseases.

There was no outbreak of any epidemic diseases during the year.

Anthrax.—The small outbreak of anthrax in Government controlled dairies towards the end of last year died out, and there have been no further cases among cattle, and none at all among human beings.

Tuberculosis.—The number of cases of tuberculosis notified was one hundred and nineteen. The incidence of tubercle, therefore, shows no diminution in the past six years.

Smallpox.—No cases occurred during the year.

Vaccination.—In addition to the number of immigrants mentioned in Port Health Report, the following were vaccinated:—

In Zanzibar Town ...	3,929
In Rural areas ...	674
In Pemba ...	1,115

Plague.—With plague in the second half of the year spreading in Nairobi, and with a small outbreak in Mombasa, the routine precautions in town and port were stiffened. Extra rat trappers were employed, and the native area trapped for the first time.

During the year fourteen thousand six hundred and fifty-nine rates were trapped, an increase of 47 per cent on last year's total. Records show thirteen rats caught for every hundred traps set, ranging from 4 per cent to 32 per cent. The average of rats caught per house trap set was 0.46.

One thousand six hundred and fifty-two rats were examined for plague with negative result.

During and for some time after the plague in Mombasa, all passengers arriving from Kenya were examined for rise of temperature and glandular enlargement.

Yellow Fever.—For details, please see Appendix I.

(c) Helminthic Diseases.

Ancylostomiasis.—It is widespread, and a serious cause of physical disability. It is impossible to estimate this in figures, especially from a comparative point of view. The Medical Officer of Health observes: "I think the work of the last three or four years is now beginning to show, and that improvement is setting in."

Natives in country districts have been encouraged to dig pit latrines. During the year one hundred and twenty-nine concrete tops have been supplied free in Zanzibar and fifty sent to Pemba.

There is still difficulty in getting natives to adopt the pit system instead of indiscriminate defaecation around their huts, but they are becoming fashionable amongst the rural population. A spontaneous demand for latine tops came from Pemba, apparently due to a feeling amongst the inhabitants that they were not quite so up-to-date as in Zanzibar. Use is being made of models, and radio-broadcasts with the news have certainly stimulated interest.

Difficulties are met with in districts where the ground is hard coral and again where it is soft fine sand.

The expense in making a pit in these two types of land is considerable, and Government have at present under consideration the question of giving financial help in these particular areas.

Schistosomiasis.—It is definitely pocketed in known areas which were the subject of a report by Dr. A. Mozley in 1939. There are swamps, especially in the south of the island and in Pemba, where this infection lingers. It is hoped to have the worst one drained before the coming spring rains, and measures for dealing with the others are under consideration.

SECTION IV.

VITAL STATISTICS.

(a) Estimated Population.

Estimated population for the whole Protectorate was two hundred and forty-three thousand two hundred and ninety-six. This cannot be considered to be accurate, owing to the registration of births and deaths being incomplete.

(b) Births and Deaths.

There were two thousand one hundred and twenty in Zanzibar and one thousand eight hundred and eighty-nine in Pemba registered births, and two thousand three hundred and two in Zanzibar and one thousand and thirty-nine registered deaths in Pemba. As the registration is incomplete, rates would be quite inaccurate.

(c) Infantile Mortality.

Registered figures were three hundred and seventeen. This is not accurate.

(d) Still Birth Rate.

Registered figures were fifty-four, giving a rate of one point three per cent, that is, the percentage of still births to still births, plus live births.

(e) Maternal Mortality.

The registered figures give a total of nineteen women dying during child birth.

(f) Main Causes of Deaths in Hospitals.

Endemic, epidemic and infectious diseases ...	85
Nervous system ...	10
Respiratory system ...	32
Digestive system ...	44
Skin and cellular tissues ...	30
External cause ...	12
Others ...	155
Total ...	368

SECTION V.

HYGIENE AND SANITATION.

I. GENERAL MEASURES OF SANITATION.

(a) Sewage Disposal.

Zanzibar Town.—Twenty-eight new septic tanks were installed during the year, resulting in the abolition of thirty-nine sullage and twenty-eight cesspits.

In the native area of the town pit latrines are in general use.

(b) Scavenging and Refuse Disposal.

Zanzibar Town.—The services continued to be carried out in a satisfactory manner, and reclamation work mentioned in previous reports has progressed. The work of filling the large tidal basin near the Wireless Station was commenced, and a considerable area was raised to the surrounding ground level by controlled dumping.

Vegetation derived from bush and grass clearing was kept separate, and used by the Agricultural Department in the making of compost. The question of utilizing suitable material separated from the general refuse to increase the output of compost is now under consideration.

(c) Drainage.

Zanzibar Town.—The construction of new drainage works was still further retarded by war conditions. Approximately nine hundred yards of new glazed earthenware drains were laid by property owners, and one hundred yards of closed and open drains were laid by the Government. Forty-two houses were connected to the public drains.

(d) Water Supplies.

The water supply of Zanzibar Town remained excellent throughout the year, and continued to show a high degree of purity as judged by the regular tests made.

(e) Offensive Trades.

The usual routine nuisances caused by offensive trades were dealt with fairly satisfactorily, considering that there is no zoned area under a town planning scheme. The provision of a large septic tank to receive the contents of cesspits after removal by contractors has been under consideration.

(f) Clearing of Bush and Undergrowth.

In Zanzibar Town the bush clearing work on public lands was mainly carried out satisfactorily by prison labour. This has a great effect in exposing hidden mosquito breeding places, and also in reducing defaecation on open plots. In addition, all private owners were regularly served with notices for the clearance of bush from their property within the town boundaries.

(g) Sanitary Inspection.

The routine work of sanitary inspectors was very satisfactorily carried out, and, inspite of difficult conditions caused by the war, succeeded in effecting steady improvement in house sanitation. In addition to their normal duties all sanitary inspectors continued to organize and train the labour staff in first-aid for service in case of emergencies.

(h) Rural Sanitation.

Sanitary inspectors visit certain places regularly. These include Makunduchi, Kizimkazi, Muyuni, Mkokotoni and Chwaka. They go round with the Mudir and make a full report on all details requiring attention. This report is submitted to the Medical Officer of Health, who sends extracts to the person concerned. The Mudir also gets and signs a copy at the time the report is made. At Chwaka and Makunduchi there are village health boards, and the members take a great interest in sanitation, etc. Tumbatu Island, off Mkokotoni, and Nungwi, to the north of Zanzibar Island, have been visited regularly during the year.

Rural dispensary attendants also tour in their districts and keep a log book. These continual methods of giving advice on sanitation to the people are gradually having effect. In co-operation with the Provincial Commissioner and District Commissioners, Zanzibar and Pemba, further measures to improve sanitation in rural areas were introduced. These include increased legislative powers to Mudirs and steps to increase the number of pit latrines in certain areas, such as Chwaka, where the state of the ground renders the cost of making them prohibitive to the inhabitants. On the whole, the conditions around African houses are clean and sanitary. Dirty surroundings are much more prevalent around the Indian houses. Certain areas in Pemba, such as Kojani and Tumbe, which have been but seldom visited in the past have been visited regularly. In Kojani, an outbreak of infantile diarrhoea was dealt with and brought under control.

II. SCHOOL HYGIENE.

Zanzibar and Pemba Schools.

All pupils attending the Arab Girls' School in Zanzibar and at Chwaka have been medically examined, and those requiring treatment have been treated. During 1940 a new school clinic was started at the Arab Girls' School, and is well attended. The Education Officer-in-Charge Female Education reports that a considerable improvement in the health of the girls has resulted.

One hundred and thirty-two pupils were examined at Dole School. On the average, the standard of nutrition was much higher than in the other rural schools. There were forty-three cases of enlarged spleens, and dental caries of a noticeable degree was found in twenty-six pupils.

One pupil was found to have an incipient hydrocele.

In Pemba, an intensified survey of school children was made, and four hundred and seventy boys and girls were medically examined by the medical officer and woman medical officer. The general condition and nutrition of the children is showing a steady improvement, and the medical officer states that dirty clothing, scabies, impetigo, lice, etc., which were formerly common are now becoming exceptional.

The Dental Surgeon writes: "It will be noted that the amount of work done has increased owing to the addition to the staff of the Arab Assistant Dental Surgeon, and practically 28 per cent of the school children have received dental treatment. Many, of course, have little to be done, but may have had as many as ten and twelve appointments each.

"Pemba was visited five times during the year, and every school in the Protectorate was examined, and treatment carried out at most schools."

WORK DONE.

	(*a*)	(*b*)	(*c*)
Schools ...	504	1,444	64
Government staff and wives ...	445	570	133
Native out-patients ...	7,437	—	—
	8,386	2,014	197

(*a*) Extractions. (*b*) Fillings. (*c*) Scale and Polish.

III. MEASURES TAKEN TO SPREAD THE KNOWLEDGE OF HYGIENE AND SANITATION.

The visits of sanitary inspectors to rural districts has been fully maintained and in some cases extended. This work is necessarily limited by the present shortage of staff.

The work of meeting and talking to village boards is continually going on, and these boards are now becoming self-conscious bodies, interested in the cleanliness of their area, and more and more inclined to exercise their influence in their districts. Here again we are indebted to the co-operation of the District Commissioners and the help given by Mudirs and Mashehas.

SECTION VI.

PORT HEALTH WORK AND ADMINISTRATION.

During the year two hundred and one ships and one thousand and sixty-eight dhows visited Zanzibar as compared with two hundred and eighty-eight ships and nine hundred and two dhows in 1940. Nine thousand one hundred and ninety immigrants arrived and ten thousand two hundred and sixty-two emigrants left.

One hundred and eighty aeroplanes arrived and one hundred and eighty left. One hundred and twenty-six immigrants arrived and one hundred and nineteen emigrants left Zanzibar by aeroplane.

Inspection of all immigrants was made, and three thousand nine hundred and fifty-two vaccinations were carried out on ships and dhows.

Six ships were claytonized during the year, and one certificate of freedom from rodents was issued.

Two thousand seven hundred and fifty-four persons embarking on ships and three thousand nine hundred and fifty-two disembarking were vaccinated.

QUARANTINE ISLAND.

The East African quarantine station was maintained throughout the year, and repairs and renovations carried out.

In June sixty-three passengers were removed from a steamer owing to an outbreak of infectious disease, and placed in quarantine on the island.

SECTION VII.

WOMEN'S CLINICS AND MATERNITY AND CHILD WELFARE.

A. Zanzibar.

Out-patient Department.—New cases have dropped to three thousand six hundred and seventy-four, partly owing to the absence of a woman medical officer and partly because chronic cases requiring the use of drugs difficult to obtain in war-time have not been encouraged.

Ante-natal cases, six hundred and four attended. This also is a drop on account of the absence of a woman medical officer.

Infant Welfare.—Owing to the shortage of European sisters this was not so well attended. The total attendance amounted to one thousand seven hundred and seventy.

Genito-Urinary Clinic.—This is really a misnomer. All cases are gynaecological, and most of the cases receive daily treatment at out-patient department.

Maternity Home.—The number of admissions to maternity hospital was eighty.

B. Zanzibar Rural Dispensary Work.

New clinics were started at Ziwani Police Lines and the Arab Girls' School. At Ziwani Police Lines a total of forty-one cases was treated.

Mkokotoni.—Seven hundred and sixty-three new cases, one thousand nine hundred and eighty-six repetitions.

Selem.—Four hundred and thirty-two new cases, one thousand four hundred and seventy-one repetitions.

Mwera.—Three hundred and three new cases, eight hundred and seventy-six repetitions.

C. Pemba Hospitals.

In Pemba there were clinics at Wete, Chake Chake and Mkoani. A new clinic was started at Kengeja, which is held weekly, and is proving very popular. Eight hundred and fifty-nine new cases and one thousand five hundred and fifty-four repetitions were treated here.

At Chake Chake, where a woman medical officer is stationed, teaching in midwifery was proceeded with. There was an increase in new cases from twenty-eight in 1940 to forty-five in 1941.

SECTION VIII.

HOSPITALS AND DISPENSARIES.

(a) Hospitals.

CASES ADMITTED:	
Europeans	64
Asiatic and African in Hospitals	4,007
African in sub-dispensaries	194
Total ...	4,265
OUT-PATIENT ATTENDANCES:	
Hospitals	207,368
Sub-dispensaries	164,219
Total ...	371,587
NEW CASES:	
Europeans	379
Asiatic and African in Hospitals	47,771
African in sub-dispensaries	43,429
Total ...	91,579
SURGICAL OPERATIONS:	
Major	528
Minor	2,497
Total ...	3,025

A majority of a patients are surgical, consisting of septic and accident cases. A weekly diabetic clinic is held and is attended by twenty patients. Forty-eight cases were treated, including thirteen at Women Out-patient Department. The majority of operations were for hernia, and the Specialist Officer observes that the majority of these were indirect and usually right-sided. He suggests that filariasis plays an important part in enlarging the sac and by increasing the width of the scrotal content. Strangulated hernias were the commonest surgical emergency in Zanzibar. The strangulated band being usually a thickened cord covering below the external ring.

It appears that peptic ulcer is more prevalent in Zanzibar than on the mainland, and the Specialist Officer observes that this may be due to the fact that the Zanzibari diet approximates more closely to the curried food of India (where peptic ulcers is also common) than that of the mainland, where the native diet is of a plain nature and largely unseasoned. In 1941, thirty-six cases of peptic ulcer were treated by surgical means, which appear to be the best method of treatment, owing to the impossibility of dieting the native over a long period. A follow-up clinic has been held monthly, and is attended by about eight patients, none of whom complained of any serious discomfort.

Pneumothorax was performed by the District Medical Officer on five selected cases, and it is hoped to extend this treatment.

(b) Dispensaries.

Zanzibar District.

Name.	New cases.	Attendances.
School Clinic	1,487	2,820
Mkokotoni and Chaani ...	2,568	6,100
Selem and Mangapwani ...	2,352	6,173
Makunduchi	3,316	7,258
Mwera	2,509	8,547
Kizimbani and Dole ...	1,595	3,262
Bububu	370	1,419
Bweleo	535	1,305
Kizimkazi	1,822	5,563
Chwaka and Uzini ...	1,514	5,146
Tunguu	1,339	3,637
Mbiji	554	867
Mwembeladu	1,910	13,949

At Mkokotoni a male clinic is held once a week and included treatment of venereal diseases. It has been well attended.

In Zanzibar, Tumbatu Island and Nungwi were regularly visited during the year.

Pemba District.

Name.	New cases.	Attendances.
Mzambaroani	2,189	7,151
Matangatwani	2,071	6,592
Kinazini	2,025	2,790
Ziwani	2,013	7,316
Ole	1,589	4,480
Kengeja	3,384	6,891
Kangani	1,714	3,408
	14985	

In Pemba an outbreak of infantile diarrhoea occurred at Kojani and was dealt with over one hundred patients being attended to. Tumbe, on a distant part of the island, was visited; one hundred and thirty persons being treated.

(c) Venereal Diseases Clinic.

The treatment of venereal disease continued during the year. Extra supplies of M & B 693 were obtained, and this treatment was substituted for that of irrigation, injection, etc., to which patients usually objected. It is to be hoped that supplies of M & B will remain sufficient to continue this treatment but stocks must be kept in reserve for treatment of pneumonia. Venereal Disease is common in Zanzibar and Pemba—especially gonorrhoea—although it is suspected that lymphogranuloma is more common than was previously thought. Separate clinics for venereal disease would not be a success owing to the publicity in which they will involve the individual. The following number of cases were treated: in Zanzibar, one thousand four hundred and eighty-nine; in Pemba, six hundred and seventy-three.

(d) Eye Clinic.

Work was continued on similar lines to previous years.

Acute disease conditions, i.e. Koch-weeks conjunctivitis, corneal ulcers, iritis of syphilitic of gonorrhoeal origin, gonococcal conjunctivitis, trachoma and complications resulting from entropion and senile cataracts, constitute the main complaints of the native population. Refraction examinations constitute a relatively small proportion of the work, and are confined mainly to school children and members of the Government clerical service.

New cases during 1941 ...	1,501
Repetition attendances ...	14,533
Total ...	16,034

(e) Annual Report of the Pathological Laboratory.

	Positive.	Negative.	Total.
A. PARASITOLOGY.			
Blood	1,112	3,757	4,869
Faeces	1,230	1,144	2,374
Urine	45	40	85
B. SEROLOGY ...	747	928	1,675
C. BACTERIOLOGY.			
Blood	5	26	31
Faeces	24	106	130
Urine	—	—	14
Sputum	147	383	530
Smears	162	188	350
Others (cultural and general examinations)	—	1,652	1,853
Vaccines prepared ...	8,675 m.l.		
D. BIOCHEMISTRY.			
Blood			794
Urine			1,222
Fractional test meals			63
Others			10
E. GENERAL.			
Blood (counts, grouping, sedimentations) ...			496
Guinea-pig inoculations for tubercle bacilli ...			10
F. HISTOLOGY.			
Specimens sectioned			14
G. AUTOPSIES.			
Examinations			13
H. MEDICO-LEGAL			10
Total examinations ...			14,496

SECTION IX.

REPORT ON THE GENERAL HEALTH OF THE PRISONERS AND SANITATION IN ZANZIBAR PRISONS.

A. Prisons.

Zanzibar.

During 1941, a total of seven hundred and twenty-one cases were seen, and of these sixty-six were admitted to the prison infirmary. Seriously ill cases referred for treatment at the Zanzibar Native Hospital. There was one death due to cerebral haemorrhage. The daily average on the sick list was six point forty-seven.

The general health of the prisoners was very good, and there were no epidemics of infectious diseases. There were fifty-three cases of malaria, which were all diagnosed on positive blood slides.

The total admission of prisoners to the prison for the year was nine hundred and eighty-six.

Pemba.

Daily average in Prison.	Daily average on sick list.	Deaths.	Death rate.
29.12	2.01	—	—

General health of the prisoners was very satisfactory. Number of in-patients treated was thirty-five and out-patients two hundred and forty.

B. Mental Hospital.

Remaining on 31st December, 1940 ...	55
Admitted during 1941	18
Discharged during 1941	11
Died during 1941	7
Remaining on 31st December, 1941 ...	55

The types of insanity prevailing were:—

Mania	12
Melancholia	21
Dementia	16
Dementia Praecox ...	3
Paranoia	1
Neurosyphilis	1
Epilaptic	1

C. Walezo Institution.

The year's figures for this institution were:—

	(a)	(b)
Remaining on 31st December, 1940 ...	132	16
Admitted during 1941	365	56
Discharged during 1941	266	22
Died during 1941	89	36
Remaining on 31st December, 1941 ...	142	14

(*a*) Poor Infirmary. (*b*) Tuberculosis Asylum.

D. Leper Settlements.

The details for the year were:

	(a)	(b)
Remaining on 31st December, 1940 ...	54	67
Admitted during 1941 ...	10	11
Discharged during 1941 ...	6	3
Died during 1941 ...	7	6
Remaining on 31st December, 1941 ...	51	69

(*a*) Walezo Leper Settlement, Zanzibar.
(*b*) Makondeni Leper Settlement, Pemba.

Walezo lepers are happy and contented. At Makondeni, which accommodates seventy lepers, new houses are being constructed. The diets at Makondeni have been revised as a result of a suggestion made by His Excellency the British Resident on his visit there. Treatment is symptomatic, and injections of alepol or chaulmoogra derivatives are given, but are not insisted on. Results in early cases are most encouraging.

TABLES I AND II.

Return of Diseases and Deaths for the Year 1941.

DISEASES	Remaining in Hospital at end of 1940	Yearly Admissions	Total Cases Treated	Total Deaths	Remaining in Hospital at end of 1941	All Cases including both In- and Out-Patients
1. Enteric Group—						
(*a*) Typhoid fever	...	1	1	...	...	3
(*b*) Paratyphoid fever	...	...	...	...	...	...
2. Typhus fever	...	...	...	...	...	...
3. Relapsing fever	...	1	1	...	...	2
4. Undulant fever	...	...	...	...	...	...
5. Small-pox	...	...	...	...	...	...
6. Measles	...	12	12	...	...	38
7. Scarlet fever	...	...	...	...	...	...
8. Whooping cough	...	2	2	1	...	124
9. Diphtheria	...	2	2	...	...	4
10. Influenza—						
(*a*) With respiratory complications	...	1	1	...	...	24
(*b*) Without respiratory complications	...	21	21	1	1	590
11. Cholera	...	...	...	...	...	...
12. Dysentery—						
(*a*) Amœbic	...	1	1	...	...	3
(*b*) Bacillary	3	8	11	2	2	28
(*c*) Unclassified	1	14	15	3	...	44
13. Plague—						
(*a*) Bubonic	...	...	...	...	...	...
(*b*) Pneumonic	...	...	...	...	...	...
(*c*) Septicæmic	...	...	...	...	...	...
14. Acute poliomyelitis	...	...	...	...	...	3
15. Encephalitis lethargica	...	...	...	...	...	...
16. Cerebro-spinal fever	...	...	...	...	...	...
17. Rabies	...	...	...	..	...	...
18. Tetanus	..	10	10	5	...	21
19. Tuberculosis of the respiratory system	20	110	130	47	18	301
20. Other tuberculous diseases	...	11	11	3	...	34
21. Leprosy	54	14	68	7	51	91
22. Venereal diseases—						
(*a*) Syphilis	...	64	64	1	1	924
(*b*) Gonorrhœa	4	76	80	2	3	1,313
(*c*) Other venereal diseases	6	17	23	1	1	92
23. Yellow fever	...	...	...	...	...	...
24. Malaria—						
(*a*) Benign tertian	1	29	30	...	...	375
(*b*) Subtertian	4	108	112	4	3	1,284
(*c*) Quartan	...	1	1	...	...	2
(*d*) Unclassified	1	136	137	5	4	6,871
25. Blackwater fever	...	3	3	1	...	6 853
26. Kala-azar	...	...	...	...	...	...
27. Trypanosomiasis	...	...	...	...	...	...
28. Yaws	...	16	16	...	1	4,021 ✓
29. Other protozoal diseases	...	2	2	...	...	7
30. Ancylostomiasis	6	156	162	13	10	8,669 ✓
31. Schistosomiasis	...	8	8	...	...	474 ✓
32. Other helminthic diseases	...	1	1	...	...	42 ✓
33. Other infectious and/or parasitic diseases	6	24	30	2	...	392
34. Cancer and other tumours—						
(*a*) Malignant	...	19	19	6	1	43
(*b*) Non-malignant	2	45	47	1	2	143
(*c*) Undetermined	...	1	1	...	...	2
35. Rheumatic conditions	1	30	31	...	...	1,134
36. Diabetes	3	22	25	...	...	74
37. Scurvy	...	...	...	...	...	...
38. Beri-beri	...	..	...	...	..	...
39. Pellagra	...	...	...	...	...	...
40. Other diseases—						
(*a*) Nutritional	4	28	32	...	2	344
(*b*) Endocrine glands and general	1	6	7	...	...	110
41. Diseases of the blood and blood-forming organs	1	33	34	7	1	368
42. Acute and chronic poisoning	...	11	11	...	...	30
43. Cerebral hæmorrhage	1	7	8	2	...	15
44. Other diseases of the nervous system	12	64	76	10	5	870
45. Trachoma	...	3	3	...	...	195
46. Other diseases of the eye and annexa	4	53	57	...	1	3,012
47. Diseases of the ear and mastoid sinus	...	5	5	...	1	1,561
48. Diseases of the circulatory system—						
(*a*) Heart diseases	3	51	54	20	3	141
(*b*) Other circulatory diseases	7	70	77	4	...	677
49. Bronchitis	3	62	65	1	1	4,307
50. Pneumonia—						
(*a*) Broncho-pneumonia	...	25	25	5	...	59
(*b*) Lobar-pneumonia	4	87	91	17	7	200
(*c*) Otherwise defined	...	1	1	...	...	28
51. Other diseases of the respiratory system	2	57	59	9	3	2,590
52. Diarrhœa and enteritis—						
(*a*) Under two years of age	...	6	6	...	...	121
(*b*) Over two years of age	...	46	46	5	4	668
Carried forward	154	1,581	1,735	185	126	42,474

Tables I and II.—(*Contd.*)

DISEASES	Remaining in Hospital at end of 1940	Yearly Admissions	Total Cases Treated	Total Deaths	Remaining in Hospital at end of 1941	All Cases including both In- and Out-Patients
Brought forward ...	154	1,581	1,735	185	126	42,474
53. Appendicitis	3	17	20	1	...	37
54. Hernia and intestinal obstruction	14	156	170	14	10	435
55. Cirrhosis of the liver	1	6	7	1	...	17
56. Other diseases of the liver and biliary passages ...	2	30	32	5	...	114
57. Other diseases of the digestive system	5	170	175	5	17	10,991
58. Nephritis (all forms)—						
(*a*) Acute	...	7	7	1	...	18
(*b*) Chronic	2	9	11	4	...	164
59. Other non-venereal diseases of the genito-urinary system	10	250	260	13	11	1,567
60. Diseases of pregnancy, child birth and the puerperal state—						
(*a*) Abortion	4	20	24	...	...	70
(*b*) Ectopic gestation	...	...	...	...	...	...
(*c*) Toxæmias of pregnancy	...	9	9	2	...	21
(*d*) Other conditions of the puerperal state ...	3	143	146	5	2	396
61. Diseases of the skin, cellular tissue, bones and organs of locomotion	72	1,012	1,084	30	81	26,993
62. Congenital malformations and diseases of early infancy—						
(*a*) Congenital debility (children under one year) ...	...	1	1	...	...	14
(*b*) Premature birth	...	...	...	...	...	5
(*c*) Injury at birth	...	1	1	...	...	2
(*d*) Others	...	1	1	...	...	9
63. Senility	115	295	410	88	129	878
64. External causes—						
(*a*) Suicide	...	...	...	...	...	...
(*b*) Other forms of violence	26	399	425	12	22	7,933
65. Ill-defined causes	20	158	178	2	3	3,986
66. Ante-natal and child welfare consultations ...	...	...	...	...	...	151
Total	431	4,265	4,696	368	401	96,275
Examinations	...	...	...	...	...	502
GRAND TOTAL ...	431	4,265	4,696	368	401	96,777

TABLE III.

FINANCIAL.

	1941. £	£
A. Expenditure—Medical Department.		
Personal Emoluments	25,160	
Other Charges :		
General Stores	1,086	
Drugs, Dental & Surgical Requisites, etc.	3,073	
Maintenance of Patients	4,868	
Passages	846	
Sanitation Labour	1,378	
Grants to Lepers	122	
Miscellaneous Services	4,933	41,466
B. Expenditure—Municipality.		
Personal Emoluments	2,598	
Other Charges :		
Equipment and Stores	218	
Sanitation Labour	4,211	7,027
C. Revenue.		
Hospital Fees, Sale of Drugs, etc ...	1,539	
Contribution from other dependencies towards the Quarantine Services ...	1,512	3,051

APPENDIX I.

ANTI-YELLOW FEVER MEASURES.

Measures to prevent the entry of yellow fever into Zanzibar, or its control if it should enter, consist of the following: —

1. *Aedes Control.*—The danger areas for mosquito breeding are the large areas south-east of the town, which become badly flooded with the heavy rains and remain as collection of water for many weeks. Precautions resolve themselves into control of aedes in the port and town of Zanzibar and the aerodrome. These include dealing with any vessels or aeroplanes arriving in Zanzibar, and for this purpose extra searchers and equipment have been engaged. Air-tight water containers have been installed on dhows. The belt of mosquito control around the town has been extended to about two miles, and about half a mile in depth round the aerodrome has been included in the anti-mosquito campaign.

A preliminary survey in selected groups of huts around the outer fringe of the new belt was taken before any work was started. This showed an Aedes Index of 38—two of the areas being as high as 75. Survey of all the huts in the new belt in December showed an index of .56. For working purposes the new area is divided into sixteen sections. Fourteen of these showed an index of "*NIL*"—and two, six and three respectively. The reason for this is not clear, but these two areas are being dealt with more particularly.

For the first year of work, especially among an ignorant people, this is a most satisfactory result.

In town in December the Aedes Index was .81. This was at the end of the *mvuli* rains when more breeding existed than usual, and is much higher than a yearly figure. The index for the year is not available, but arrangements have been made for monthly index to be kept during 1942.

It was proposed to build mosquito-proof rooms at the aerodrome, but it was decided that the provision of mosquito nets, under which a passenger would be brought to the hospital where he would be put into a mosquito-proof room would be sufficient.

(i) Dhows.

Zanzibar.—All dhows are boarded on arrival, and a careful search made for mosquito breeding. Whether breeding is found or not, pratiqué is not given unless the dhow has a suitable mosquito-proof water container. Breeding was not found in any case in the bilges, and was confined entirely to the water containers.

Coastal dhows are compelled to supply themselves with a proper water tank, or are given the opportunity of purchasing one of the type agreed on with mainland territories.

Foreign dhows not possessing such may hire one of the approved type while on the coast, or if they so choose may purchase one. With the increasing scarcity of drums, these foreign dhows are not being encouraged to hire, but to make their own tanks mosquito proof.

Weekly examination of dhows is regularly carried out while these remain in harbour.

Attached is a list of numbers of dhows arriving, numbers found to be breeding various types of mosquitoes, and number of water drums supplied.

Pemba.—Four hundred and sixty-four dhows were inspected during the year in Wete, in eighty-two of which stegomyia were found to be breeding. One hundred and forty-four were inspected at Mkoani.

Since the beginning of the year, when this dhow searching began, the rate of dhow infestation has declined as the drinking water containers were installed.

(ii) Ships.

The few ships which arrived from Benadir Coast were carefully examined for breeding, but in no case was any found.

The Medical Officer of Health discussed anti-aedes measures with the Medical Officer of Health, Mombasa, when in Mombasa. Among these was full inspection of every ship, carried out by a European Inspector and African staff. Zanzibar is in an entirely different position. Mombasa has a large number of ships arriving, and most of these stay a good many days and come along side the wharf.

Here in present circumstances we frequently go ten days or more without a single arrival. Then it is a case of three or four hours' hurry so as to reach the next port in daylight or to get away from here before dusk. In the circumstances we are not justified in forming a large staff for the purpose. But we can take advantage of Mombasa's experience in this, that breeding has only been found in lifeboats or in the domestic quarters. So we have now commenced an examination of these parts in such ships as have not called at Mombasa in the north or Dar-es-Salaam in the south.

During 1941 seventy-six approved type water drums were sold to dhow owners.

(1) From January to middle of April ordinary routine inspection of four dhows daily was made by one of the town searchers.

Three hundred and sixty local and foreign dhows were inspected during this period and stegomya mosquito larvae were found in nine dhows.

(2) The following is the table from middle of April when this was brought under Yellow Fever Scheme and all dhows examined on arrival and once weekly in port.

	(*a*)	(*b*)	(*c*)
April ...	49	6	82
May ...	152	11	61
June ...	130	16	33
July ...	135	12	11
August ...	115	4	19
September ...	167	4	50
October ...	171	1	42
November ...	118	4	49
December ...	139	—	78
	1,176	58	425

(*a*) Number of local dhows.
(*b*) Number of dhows in which stegomyia larvae found.
(*c*) Number of foreign dhows.

(iii) Mosquito Breeding Places and Catches.

(*a*) Mosquito breeding places found in the controlled belt up to two miles from the Zanzibar Town boundary from May to December, 1941:—

Area.	(*a*)	(*b*)	(*c*)
No. 1—Migombani to Jangombe ...	61	97	35
No. 2—Mazizini to Mpendai ...	6	20	121
No. 3—Mbweni to Mombasa ...	5	21	133
No. 4—Mwana Kwerekwe to Walezo ...	50	89	38
No. 5—Mpendai to Magogoni Kinuni ...	50	42	59
No. 6—Mombasa to Mwana Kwerekwe ...	33	29	55
No. 7—Chumbuni Kubwa to Marahubi ...	71	53	66
No. 8—Magogoni Kinuni to Chumbuni ...	30	31	47
No. 9—Fuoni Kilimani to Walezo ...	45	29	97
No. 10—Chumbuni to Mtoni village ...	36	28	38
No. 11—Walezo to Mgongo wa Ngamia ...	29	36	58
No. 12—Mgongo wa Ngamia to Mtoni Kigomeni ...	52	46	139
	468	521	886

(*a*) Anopheline. (*b*) Culicine. (*c*) Stegomyia.

(*b*) Adult mosquitoes caught in fixed control stations in the above-mentioned yellow fever belt:—

Area.	(*a*)	(*b*)	(*c*)
No. 1—Migombani to Jangombe ...	104	458	17
No. 2—Mazizini to Mpendai ...	124	407	49
No. 3—Mbweni to Mombasa ...	48	716	60
No. 4—Mwana Kwerekwe to Walezo ...	70	470	25
No. 5—Mpendai to Magogoni Kinuni ...	894	193	85
No. 6—Mombasa to Mwana Kwerekwe ...	61	592	218
No. 7—Chumbuni Kubwa to Marahubi ...	82	1,113	76
No. 8—Magogoni Kinuni to Chumbuni ...	183	289	125
No. 9—Fuoni Kilimani to Walezo ...	233	708	246
No. 10—Chumbuni to Mtoni village ...	210	566	67
No. 11—Walezo to Mgongo wa Ngamia ...	808	523	153
No. 12—Mgongo wa Ngamia to Mtoni Kigomeni ...	263	755	36
	3,080	6,790	1,157

(*a*) Anopheline. (*b*) Culicine. (*c*) Stegomyia.

(iv) Zanzibar Aerodrome.

(*a*) Mosquito breeding places found within half-mile radius of the aerodrome from May to December, 1941: Anopheline, 7; culicine, 34; stegomyia, 170.

(*b*) Adult mosquitoes caught in control stations in the above area: Anopheline, 8; culicine, 738; stegomyia, 87.

In this area are about one hundred and eighty huts, and these are inspected weekly. In addition, all open lands, eighteen wells, and about two hundred trees are also inspected.

2. *Inoculation.*—Compulsory inoculation is not considered necessary at present. But persons who are liable to be infected at the entry points have been inoculated. These include port labour, health and medical personnel and personnel at the aerodrome. Inoculation on a voluntary basis is being steadily proceeded with and two thousand six hundred and

seventy-five persons have been inoculated during the year. Persons travelling to the mainland—especially the East African territories—are advised to be inoculated, and are given certificates to this effect.

3. *Viscerotomy.*—Three viscerotomes have been obtained for use if necessary.

4. *Propaganda.*—Notices have been published in the press. Medical practitioners have been circulated regarding precautions against yellow fever symptoms, etc.

Eighty-three Serums have been sent to the Medical Research Institute, Entebbe, for testing for immunity. These included seventy-seven taken from persons scattered all over Zanzibar and Pemba for mouse protection tests. These showed non-immunity in 1933, and a similar results was obtained this time, proving that there had been no case of yellow fever during the interval. Of the inoculated persons, two showed non-immunity, showing that the inoculation had not been effective.

5. *Legislation.*—Legislation has been introduced to prevent vessels calling at Pemba direct. All vessels, unless exempt for some special reason, must first of all call at Zanzibar, where they undergo anti-aedes measures and installation of water containers in the case of dhows. In this way Zanzibar acts as a filter to Pemba.

Powers have been taken for medical examination, disinfection and inoculation, vaccination, surveillance and observation of persons liable to be infected, and, towards the end of the year, under the Quarantine Decree, rules were being considered (since enforced) to prevent the entry of persons from territories infected with yellow fever. These territories were Belgian Congo, Southern Sudan or West African territories. The order to declare any part of the Protectorate an infected area is in readiness to be enacted if it should be wanted. An order to enforce inoculation is also in readiness.

APPENDIX II.

SCHEME FOR THE TRAINING OF MIDWIVES.

The following scheme for midwives was drawn up. They will be divided into three grades:—

Grade I.—These will be especially selected for intelligence, education, social position, etc., and will undergo the usual three years' training as nurses before qualifying for midwifery by examination at the end of the fourth year. They will, in fact, be selected from the nursing staff, and their pay will be the same as that of nurses, i.e. Shs. 25 by 2/50 to 27/50 by 2/50 to 30.

Grade II.—These will be trained in midwifery only, i.e. they will have two years' training in midwifery and will have to pass an examination. They will be used in certain hospitals, but will be mainly intended for rural dispensaries, where they will take the place of ayahs at Government dispensaries such as Mkokotoni, Chwaka, etc. They will start at a salary of Shs. 25 per month continuing as Range VI. As far as possible, they will be literate Swahili or Arab. Some of these, if showing special merit, would be trained in nursing and selected for Grade I. At present there are four under training in Zanzibar and three in Pemba.

Grade III.—These will start at Shs. 25 per month and will be only taken on for a training of two years. At the end of their training they will return to their villages and will be supplied with simple drugs and dressings, and will be entitled to their own fees, but must produce a record of cases attended. They should also get a free house or an allowance in lieu thereof, and possibly a small monthly payment of Shs. 5 to Shs. 10. As it is not proposed to engage any in this grade until there is a demand for their services, it is not necessary to work out details of payment, etc., until more is known of what is required.

The idea of European methods must first be popularised amongst the people, and this can best be done by the dispensary and hospital midwives, and it may be found that an extension of the dispenser midwife system may be the best solution. I have, however, included this grade in the scheme as it may be found that certain midwives would prefer to return to their shambas rather than work in rural dispensary, and it would be possible under this grade to keep them under proper supervision.

The Zanibar Maternity Association is co-operating in this training, and the experience gained there in district nursing will be invaluable.

LIBRARY
OF CONGRESS